

REMARKS

This is a response to the Office Action mailed March 3, 2006. Claims 1-19 are cancelled by this amendment and new claims 20-39 are added. Thus, claims 20-39 are presently pending.

Applicant has invented a unique steering system which combines, for the first time, an optics system for performing relatively larger turns (optical deflections) with a small angle beam steerer for performing relatively smaller turns (optical deflections). That combination facilitates precise angular redirections. Moreover, the system is versatile as it functions as either a transmitter or a receiver."

In the Office Action, the Examiner rejected claims 1-19 under 35 U.S.C. 103(a) as being unpatentable over Sandler et al. in view of Grinberg et al.

Sandler discloses an optical cross connect switch wherein a number of communication beams from a first set of optical fibers are directed (switched) to selected ones of a second set of optical fibers. Two beam directors, each having a plurality of beam directing elements, effect the desired switching.

According to Sandler, each communication beam has a dedicated alignment beam. The alignment beam originates from a source disposed proximate its dedicated optical fiber of the first set of optical fibers and, when the alignment of the two beam directors is correct, is incident upon a detector disposed proximate its dedicated optical fiber of the second set of optical fibers. Thus, use of the alignment beam facilitates desired alignment of the two beam directors such that an optical fiber of the first set of optical fibers is switched to a selected optical fiber of the second set of optical fibers.

The Examiner stated that "Sandler fails to specifically disclose where the beam steering was for small angles." The Examiner cites Grinberg to compensate for this deficiency of Sandler to teach a small angle beam steerer.

It is respectfully submitted that not only does Sandler not teach the use of a small angle beam steerer, but Sandler's use of alignment beams makes the use of a small angle beam steerer unnecessary. Further, Applicant believes that the precise steering provided by a small angle beam steerer is not required by Sandler, since Sandler is merely switching communication signals from one optical fiber to another.

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Thus, the Sandler Optical Cross Connect Switch would not benefit from the addition of a small angle beam steering and there is therefore no motivation to provide one. The Examiner has merely used hindsight to combine the Phased Array For Optical Beam Control of Grinberg with the Optical Cross Connect Switch of Sandler in an attempt to make the present invention obvious.

Indeed, Applicant believes that Sandler teaches away from the use of a small angle beam steerer by providing an alternative (and presumably superior) method for aiming. Rather than relying upon a small angle beam steerer to provide for the aiming of the communication beam from the first fiber to the second fiber, Sandler uses offset values of the alignment beam with respect to the communication beam (page 5, paragraphs [0055] to [0058]). More particularly, Sandler states "To provide the *best possible positioning* of communication beam 114 on lenslet 310 to maximize the light transmitted into output fiber 304, a position sensor 336 is provided to detect the position of alignment beam 116" (page 5, paragraph [0055]) and "Because the offset values 350 and 352 are known, the focusing light pattern 316 may be *precisely positioned* on core 321 of fiber 104 . . ." (page 5, paragraph [0058]). (emphasis added)

It is further respectfully submitted that the hypothetical combination of Sandler with Grinberg does not make the claimed invention obvious. According to the claimed invention, large angle beam steering causes the beam to be aimed generally in the desired direction and small angle beam steering more precisely aims the beam. The position of a source or detector with respect to an optics assembly effects large angle beam steering, while the use of a small angle beam steerer effects small angle beam steering. The claims have been re-written so as to clarify this distinction.

More particularly, the claims have been re-written to recite the use of the position of the source (or the angle of light received by the optics assembly, which is dependent upon the position of the source of the light) to determine the large steering angle. This is contrasted to operation of Sandler, wherein all beam steering is facilitated by the use of alignment beams.

Moreover, according to the present invention large angle beam steering is provided by the position of the source of the light. This may best be seen in Fig. 1 of the drawings. When the present invention is implemented as a transmitter, the position of the

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source element (as determined by which source element 14 is selected) defines the large steering angle. It can be seen that the selection of one source element 14 will result in an output beam 22 that has one large steering angle, while the selection of different source element 14 will result in a different large steering angle for output beam 22.

Similarly, when the present invention is implemented as a receiver, the angle of the input beam 22 (which is determined by the position of the source thereof) defines the large steering angle.

It is respectfully submitted that none of the cited references, taken either alone or in combination with one another, either disclose or make obvious "a large steering angle of the output beam being defined by a position of the source element that was selected," as recited in new claim 20; "a large steering angle defined by an angle of the light received by the optics system," as recited in new claim 28; or "the output beam being directed toward one of the detector elements according to a large steering angle defined by an angle of the light received by the optics system," as recited in new claim 35.

#### CONCLUSION

In view of this amendment, it is respectfully submitted that all of the pending claims are in condition for immediate allowance. Reconsideration, withdrawal of the rejection and a timely Notice of Allowance are therefore respectfully requested.

If the Examiner has any questions or concerns, a telephone call to the undersigned at (949) 752-7040 is welcomed and encouraged.

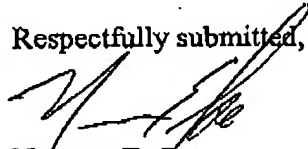
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